

# Mineral Industry Surveys

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## MANUFACTURED ABRASIVES IN THE THIRD QUARTER 1999

The U.S. Geological Survey (USGS) collects quarterly data on manufactured abrasives through its survey of producers. Manufactured abrasives included in this report are fused aluminum oxide, silicon carbide, and metallic abrasives. Where indicated, U.S. and Canadian data are combined to protect proprietary information. Except where noted, the quantities cited in this report are in metric units.

### Fused Aluminum Oxide

During the third quarter, fused aluminum oxide was produced by one company with one plant operating in the United States and one plant operating in Canada. Although the USGS collects production data from this firm, publication of the data has been discontinued to protect company proprietary interests.

According to the Bureau of the Census, 1999 U.S. imports of crude fused aluminum oxide through August were 71,200 tons valued at \$24.3 million, or an average of \$341 per ton. About 64% of the imports came from Canada and 33% from China. Imports of crude fused aluminum oxide from China have been rising, but some of the imports may not be abrasive quality material.

U.S. imports of refined and ground fused aluminum oxide in the first eight months of 1999 reached 36,300 tons valued at \$26.7 million, or an average of \$735 per ton. The top five sources of the refined and ground imports were China (35%), Austria (16%), Canada (15%), Germany (13%), and Brazil (13%). Low-cost imports of fused aluminum oxide grain from China have been increasing in recent years. The imports, however, reportedly include refractory grade material as well as abrasive grain.

U.S. exports of fused aluminum oxide through August 1999 were 6,180 tons. The exports were valued at \$14.9 million, or \$2,420 per ton. Germany received 26% of the exports that were shipped; Canada received 22%, and Mexico received 20%.

The Department of Defense (DOD) stores fused aluminum oxide in the National Defense Stockpile (NDS), all of which has been authorized by law for disposal. There were no sales of crude fused

aluminum oxide during the third quarter of 1999; the DOD sold 392 tons of fused aluminum oxide abrasive grain valued at \$180,000. At the end of the quarter, 56,000 tons of crude fused aluminum oxide (\$14 million) and 18,600 tons of fused aluminum oxide abrasive grain (\$6.3 million) remained in the NDS. The DOD has been accelerating the disposal of NDS fused aluminum oxide; additional sales are planned for 1999. If the current disposal rate and NDS sales schedules are continued, all of the stockpiled fused aluminum oxide will be sold by 2003.

### Silicon Carbide

Abrasive-grade silicon carbide is produced by one company in the United States and by one company in Canada. Although the USGS collects production data from both firms, publication of the data has been discontinued to protect company proprietary interests.

Total 1999 U.S. imports of crude silicon carbide through August were 111,000 tons valued at \$37.1 million; imports from China alone were 89,000 tons valued at \$22.2 million. The average price of imported crude silicon carbide, excluding Chinese crude, was \$667 per ton; the average price of Chinese crude was \$249 per ton. U.S. imports of refined and ground silicon carbide for the same period were 8,730 tons valued at \$16.7 million, or an average of \$1,920 per ton. During the period, China, a significant source of silicon carbide, accounted for 80% of the crude material and 17% of the refined and ground material. A large part of the Chinese imports, however, reportedly are only metallurgical grade quality.

U.S. exports of crude silicon carbide through August 1999 were reported to be 190 tons with a value of \$1.9 million. Exports of refined and ground silicon carbide were 5,250 tons valued at \$5.4 million. Almost all of the crude material was shipped to Mexico, Germany, and Japan and most of the refined material went to Canada, Mexico, and Japan.

Until early 1999, the DOD stored silicon carbide in the NDS. However, during the first quarter of 1999 the DOD sold all of the

silicon carbide remaining in the stockpile. No further stockpiling of silicon carbide by the DOD is anticipated.

### **Metallic Abrasives**

Metallic abrasives information was collected from twelve companies operating fourteen U.S. plants. During the third quarter of 1999, six companies produced 66,700 tons of steel shot and grit, a 10% increase over to the same period in 1998. At least one of the companies produced shot and grit from reclaimed material. Total third quarter production was valued at \$29.8 million, or an average of \$447 per ton. Total annual output in 1999 is projected to be 284,000 tons valued at \$125 million; 1998 output was 265,000 tons valued at \$116 million.

Shipments of steel shot and grit in the third quarter were 69,800 tons valued at \$30.7 million, or an average of \$440 per ton. Shipments during the third quarter of 1998 were 69,600 tons valued at \$31.1 million for an average of \$447 per ton.

Estimated third quarter production of other types of metallic shot and grit (primarily cut wire shot) was 495 tons valued at \$1.7 million. Six companies produced the shot.

Imports of all types of metallic shot and grit through August 1999 were 19,500 tons valued at \$9.9 million for an average of \$510 per ton. Canada was the largest supplier, accounting for 83% of the tonnage imported.

Exports of all types of metallic abrasives through August 1999 were 17,000 tons valued at \$11.5 million, or an average of \$679 per ton. Shipments to Canada accounted for 55% of the exports; an additional 27% was shipped to Mexico.

An idle metallic abrasives plant in Mexico that was purchased by a U.S. firm in early 1999 remained closed in the Third quarter. Planned output from the plant is intended for markets in the United States as well as in Mexico (Victoria DeSanctis, Panabrasives Inc., oral commun., 1999).

TABLE 1  
MANUFACTURED ABRASIVES 1/

(Metric tons unless otherwise specified)

Source and Product	1998				1999					
	Third quarter		Fourth quarter		First quarter		Second quarter		Third quarter	
	Quantity	Value (thousands)	Quantity	Value (thousands)	Quantity	Value (thousands)	Quantity	Value (thousands)	Quantity	Value (thousands)
United States and Canada: Production										
Silicon carbide 2/	17,000	\$10,200 e/	17,400	\$10,400 e/	17,500	\$10,500 e/	W	W	W	W
Crude aluminum oxide: Regular-grade e/ 3/	22,300	8,230	24,100	8,480	26,800	9,520	22,000	\$7,650	W	W
United States: Production										
Steel shot and grit	60,800	26,600	64,800	28,400	72,200	31,800	73,900	32,000	66,700	\$29,800
Other shot and grit e/ 4/	418	1,500	519	2,170	516	1,910	503	1,760	495	1,730
Total	61,200	28,100	65,300	30,500	72,700	33,700	74,400	33,700	67,200	31,500
United States: Shipments										
Steel shot and grit	69,600	31,100	65,300	29,100	72,200	31,900	72,300	31,900	69,800	30,700
Other shot and grit e/ 4/	423	1,710	505	2,090	523	1,950	504	1,760	494	1,730
Total	70,100	32,800	65,800	31,200	72,700	33,900	72,800	33,700	70,300	32,400

e/ Estimated. W Withheld to avoid disclosing company proprietary data.

1/ Data are rounded to three significant digits; may not add to totals shown.

2/ Includes materials for metallurgical uses and other applications.

3/ Regular-grade normally accounts for 85% of total output, and high-purity material accounts for the remainder.

4/ Includes cut wire shot and reclaimed shot and grit from primary producers.